

REMARKS

I. Introduction

In response to the Office Action dated April 7, 2006, claims 1, 3-7 and 19 have been amended, and claims 20-21 have been added. Claims 1-21 are in the application. Re-examination and re-consideration of the application, as amended, is requested.

II. Claim Amendments

Applicants' attorney has made amendments to the claims as indicated above. These amendments were made solely for the purpose of clarifying the language of the claims, and were not required for patentability or to distinguish the claims over the prior art.

III. Information Disclosure Statement

In paragraphs (2-21) of the Office Action, it was noted that the listing of references in the specification is not a proper information disclosure statement.

Applicants' attorney submitted an information disclosure statement and form 1449 on April 19, 2006, which included the references listed in the specification. Applicants' attorney requests that the Office consider the references submitted in the information disclosure statement and return an initialed copy of the form 1449.

IV. Prior Art Rejections

A. The Office Action Rejections

In paragraphs (2-21) of the Office Action, claims 1-13, 15 and 17-19 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 6,153,010 (Kiyoku).

However, in paragraph (22) of the Office Action, claims 14 and 16 are indicated as being allowable if rewritten in independent form including the base claim and any intervening claims.

Applicants' attorney acknowledges the indication of allowable claims, but respectfully traverses these rejections.

B. The Kiyoku Reference

Kiyoku describes a method of growing a nitride semiconductor crystal which has very few crystal defects and can be used as a substrate. This invention includes the step of forming a first selective growth mask on a support member including a dissimilar substrate having a major surface

and made of a material different from a nitride semiconductor, the first selective growth mask having a plurality of first windows for selectively exposing the upper surface of the support member, and the step of growing nitride semiconductor portions from the upper surface, of the support member, which is exposed from the windows, by using a gaseous Group 3 element source and a gaseous nitrogen source, until the nitride semiconductor portions grown in the adjacent windows combine with each other on the upper surface of the selective growth mask.

C. The Wong Reference

Wong describes gallium nitride substrates formed by etching a gallium nitride layer on a sapphire substrate or by selective area regrowth of a gallium nitride layer first deposited onto a sapphire substrate. The gallium nitride layers are bonded to a support substrate and a laser pulse directed through the transparent sapphire detaches the gallium nitride layers from the sapphire substrate. The gallium nitride layers are then detached from the support substrate forming freestanding gallium nitride substrates.

D. The Applicants' Invention is Patentable Over the References

Applicants' amended independent claim 1 discloses a method of performing a lateral epitaxial overgrowth of a planar, non-polar, a-plane gallium nitride (GaN) film, comprising (a) patterning a mask deposited on a substrate, and (b) performing a lateral epitaxial overgrowth of the planar, non polar GaN film off the substrate using hydride vapor phase epitaxy, wherein the planar, non polar, a-plane GaN film nucleates only on portions of the substrate not covered by the patterned mask, the planar, non polar, a-plane GaN film grows vertically through openings in the patterned mask, and the planar, non polar, a-plane GaN film then spreads laterally above the patterned mask and across the substrate's surface.

Applicants' amended independent claim 19 discloses a lateral epitaxial overgrowth created using a dielectric mask and a method similar to Applicants' amended independent claim 1.

On the other hand, Kiyoku's method teaches the growth of c-plane GaN, not a-plane GaN (see Kiyoku at col. 3, lines 35 to 45). In this regard, Kiyoku's method starts with either c-plane or a-plane sapphire, both of which are known in the art to yield c-plane GaN, not a-plane GaN. Moreover, every mention of "a-plane" in Kiyoku describes either an a-plane sapphire substrate or a c-plane sapphire substrate with an a-plane orientation flat (ORF), but not an a-plane GaN film (see, e.g., Kiyoku at col. 7, lines 15-25 and col. 9, line 14).

Indeed, Kiyoku's method is not relevant to growth of a-plane GaN. In fact, Kiyoku leads to a GaN film with narrow small cavities (see Kiyoku at col. 6, line 11), because of the dramatically different crystallography of c-plane compared to a-plane GaN growth. The ability to grow planar, non-polar, a-plane GaN is novel and was invented by Applicants.

Applicants' attorney notes the Wong reference was cited the Office Action to overcome Applicants' dependent claim 3 and is therefore not relevant to the discussion of Applicants' amended independent claims 1 and 19. More specifically, Wong is directed to growth pressure ranges which are outside the scope of Applicants' independent claims.

Thus, Applicants' attorney submits that amended independent claims 1 and 19 are allowable over Kiyoku. Further, dependent claims 2-21 are submitted to be allowable over Kiyoku and/or Wong in the same manner, because they are dependent on independent claims 1 and 19, respectively, and thus contain all the limitations of the independent claims. In addition, dependent claims 2-18 recite additional novel elements not shown by Kiyoku and/or Wong.

V. Conclusion

In view of the above, it is submitted that this application is now in good order for allowance and such allowance is respectfully solicited. Should the Examiner believe minor matters still remain that can be resolved in a telephone interview, the Examiner is urged to call Applicants' undersigned attorney.

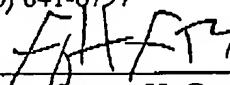
Respectfully submitted,

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